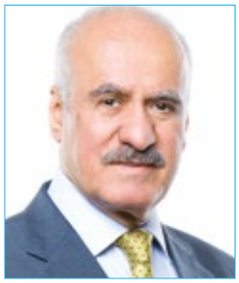

SHAPING THE FUTURE ENERGY VISION

By HE Suleiman Jasir Al-Herbish
Director General, OPEC Fund for International Development (OFID)

With energy access a core component of their agenda, the new Sustainable Development Goals promise light at the end of the tunnel for the 1.1 billion people living without electricity.

When world leaders announced the Millennium Development Goals (MDGs) in the year 2000, they were united on the need for a development agenda that would take action and make real progress. With eight goals and 21 targets, the MDGs provided for the first time a clear guide – and a fixed timeframe – to disbursing development aid and informing policy in order to free people from extreme poverty, provide education, improve health and protect the environment.

What the MDGs did not address was the issue of energy provision, despite access to modern energy services being a catalyst to achieving all eight goals, including the very first: the eradication of extreme poverty and hunger. It was a harmful omission.

The good news is that recent years have seen a seismic shift in the way energy is perceived. Thanks to a resolute push by advocates, including OFID, energy poverty and its implications for sustainable development have slowly penetrated the global consciousness. As a result, the eradication of energy poverty has secured a prominent place in the post-2015 development agenda, where it is addressed in Sustainable Development Goal 7.

SDG7 has three main targets: ensuring universal access to affordable, reliable, sustainable and modern energy; substantially increasing the share of renewable energy in the global energy mix; and doubling the global rate of improvement in energy efficiency. It further sets out to expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, particularly least developed countries and small island developing states. The year 2030 marks the deadline.

Alongside the goals themselves, the SDG process also highlights investment needs, which amount to trillions of dollars. To reach SDG7 targets by 2030, around US$1.26tr is required in annual investment – the equivalent of three times the current level. This includes US$560bn in energy efficiency, US$650bn in renewable energy, and just US$49.4bn – or less than four per cent of the total – in energy access, making it the least expensive target to reach. However, this sizeable rise in investment requirements confirms the real need for more innovative financing vehicles, cost-effective technology solutions, and consistent and credible policies.

The dark side of the world

There is no doubt that the greatest scientific achievement of the nineteenth century is the harnessing of electricity. Since the first electricity grid was built in San Francisco in 1879, the face of the Earth has transformed. People in developed countries take electricity for granted. However, this is not the case for all people. The widespread absence of modern energy access continues to hamper socioeconomic progress in developing countries worldwide.

Nearly 1.1 billion people – one in six globally – have no access to electricity at all, with sub-Saharan Africa, developing Asia, and Latin America the worst affected regions. This constraint compromises productivity and income generation, as well as learning, personal safety, healthcare delivery and many other aspects of daily life.

Lack of access to electricity is primarily a rural problem. Developing Asia has the largest number of people without electrification (675 million out of a regional population of 3.6 billion), while sub-Saharan Africa has the highest percentage of population without electricity (72 per cent). In these regions, more than 80 per cent of the people without electricity live in rural areas. Among the countries in developing Asia, India has the largest share (42 per cent) of people without electricity.

Ongoing economic expansion throughout Asia will drive rising world demand for energy over the next two decades at an average rate of 1.4 per cent a year

In addition, 2.9 billion people have no access to clean cooking facilities, relying instead on the intensified use of traditional biomass fuels. This practice produces indoor air pollution, which can have a severe impact on health if people are exposed to it for long periods of time, killing 4 million people every year.

Universal energy access: the solutions

Providing electricity to everyone is still an unsolved challenge from a global perspective. Central electricity generation with transmission and distribution is still considered as the most cost-competitive way of providing electricity. Though this might be true for most urban and densely populated areas, the situation in rural areas is different.

Solar photovoltaic energy technology will be the largest contributor to decentralised off-grid and mini-grid systems by 2040

With the reduction of inequalities lying central to the SDGs, the achievement of energy access for all is a must. At the core of this effort are the needs of rural communities and smallholder farmers, who need energy to increase productivity, provide light for education and stop indoor air pollution. Decentralised off-grid and mini-grid schemes are best suited to generating the energy for such communities. The main technologies available for these types of systems are diesel generators or renewable energy technologies, including solar photovoltaic (PV), and small hydro and wind systems.

Under its 'New Policies' scenario, the International Energy Agency (IEA) projects that by 2040, in both mini-grid and off-grid systems, solar PV will contribute the largest share (37 per cent in mini-grid and 47 per cent in off-grid) followed by diesel generators (32 per cent and 35 per cent respectively), then small hydro and wind and very small amounts of bioenergy. However, these schemes, in particular the mini-grids, face major implementing and operational hurdles related to socioeconomic, policy, regulatory, economic and financing issues.

Mixing it up

Looking at the global picture, the demand for energy is only going to get bigger by 2035. The global middle class is expected to double to nearly five billion, which means twice as many people will need commercial fuels for heating, cooling, mobility and manufacturing. Ongoing economic expansion throughout Asia will drive rising world demand for energy over the next two decades at an average rate of 1.4 per cent a year[1].

When choosing mechanisms to design and deploy policies to meet future energy demand, policymakers need to look at cost-effectiveness. But it must be kept in mind that there is no one-size-fits-all solution. Advantage must be taken of the complete range of organisational and technical possibilities so as to be able to adapt to a given situation.

Renewable energy sources have witnessed impressive growth rates over the last decade, with global investment reaching US$270bn in 2014. This phenomenal growth is taking place principally in developed and emerging developing countries; China accounted for almost two-thirds of the investment in 2014. By 2013, East Asia's total renewable power generating capacity was 457GW (more than 29 per cent of the global total), with China accounting for over 80 per cent of this amount[2]. Various forms of policy and government support in these countries have sustained this growth.

It is clear that renewable energy sources have considerable potential to meet mainstream electricity needs. However, having solved the problems of harnessing them there is a further challenge: of integrating them into the supply system. Sun, wind, tides and waves cannot be controlled to provide either continuous base-load power or peak-load power when it is needed. To satisfy the growing energy needs of a growing global population, all energy sources – including traditional fuels – will need to be tapped. What we are looking at, therefore, is a global energy supply mix that is characterised by diversity.

The share of global power generation of non-fossil fuels, including nuclear, renewables and biofuels, is expected to increase to 38 per cent by 2035, from 32 per cent in 2013. Despite the market size of fossil fuels in power sector decreasing, conventional fuels will remain dominating the global energy mix in 2035 at 81 per cent, down from 86 per cent in 2013.

Due to its cleanliness and abundance, natural gas will certainly play an important bridging role when it comes to shaping our common low-carbon future. Indeed, according to all credible forecasts, gas will be the fastest-growing fossil fuel and will meet as much of the increase in demand as coal and oil combined. Natural gas consumption is projected to increase 1.9 per cent a year, mainly as a result of an increase in demand from Asia. This will be met by rising conventional gas production, mostly from the Middle East and Russia, as well as about half from shale gas, of which the USA will account for three-quarters of the world's total supply[3]. ■

[1] *BP Energy Outlook 2035*
[2] *Renewable Energy Global Status Report 2015, REN 21*
[3] *BP Energy Outlook 2035*

OFID LEADING THE CHARGE

OFID has been implementing energy projects for almost forty years. Since 2007, though, its efforts have intensified following a direct mandate from its Member Countries in the Solemn Declaration of the Third OPEC Summit. This mandate was framed in 2008 in Jeddah, with the announcement by the late King Abdullah of his energy initiative. OFID acting on this mandate crafted its energy for the poor initiative as a concrete action plan. Energy poverty alleviation has since become OFID's primary strategic focus, with activities carried out at both advocacy and operational levels.

During the transition from the MDGs to SDGs, OFID was one of the leading proponents of energy poverty eradication and the first to label energy access the '9th missing MDG'. In 2011, this pioneering role resulted in OFID joining the United Nations Sustainable Energy for All (SE4ALL) initiative and its advisory board. From this position, OFID has expanded its sphere of influence as a champion of energy poverty eradication, strengthening existing partnerships with the likes of the World Bank, the Asian Development Bank, CAF, and IFAD to find and fund solutions.

At an operational level, OFID has taken action to work with its partner countries to prioritise universal access to sustainable modern energy services. OFID considers both conventional and renewable energy sources to be viable and pursues both in the quest for solutions that will satisfy the basic energy needs of the poor.

OFID's efforts were boosted in June 2012, when its finance ministers issued a *Declaration on Energy Poverty* and committed a minimum of US$1bn to help fund the EPI. One year later, following operational success and high demand from partner countries, this commitment was converted from a one-time obligation, to a revolving pledge.

Since 2008, OFID has expanded the number of energy projects in its portfolio, providing a total US$2.1bn in financing through its various operating windows, including public, private and trade. Among other initiatives, this sum has included support to 65 projects with a combined total cost of over US$20bn. Collectively, these projects provided more than 14,000MW of power and extended electricity grids by 32,000km.

In fighting energy poverty, OFID delivers a wide range of solutions to suit all kinds of circumstances. From large, capital-intensive investments to innovative, small-scale community schemes. From gas pipelines and power plants to solar lanterns and clean cookstoves. The technology utilised is based on need and not on any preference on OFID's part. The end-result – providing people with the energy they need to live safe, productive lives – is far more important than the fuel source.

IN ACTION ON THE GROUND

In Jordan, OFID has been part of the largest private sector solar initiative in the MENA region. A US$25m loan provided through its private sector window has supported the Jordan Solar One and Falcon Ma'an power plants. Together, the two projects have a combined capacity of 102MW and will generate a combined 98GW/h of electricity annually. The investments form part of a wider IFC-led programme – the Jordan Solar Seven Sisters – involving a total of seven solar installations.

Another private sector-financed initiative is the 'Fauji Wind Projects' in Pakistan. This joint effort with the Islamic Development Bank sees OFID supporting the construction of two wind farms which will add 100MW of power to the national grid. The project, which has a total cost of around US$260m, will reduce the country's electricity supply gap and decrease dependence on expensive oil imports, while harnessing the wcountry's renewable energy potential.

Through its public sector financing window, OFID has provided US$30m to support the construction of a 225MW combined cycle power plant in Bangladesh. The project is integrating liquid fuel with gas to create a dual fuel facility, therefore partially mitigating the gas shortage obstacle. In this context, the project will contribute to closing the electricity supply deficit, creating a positive impact on the industrial development of the Chittagong district, and supporting and sustaining the socioeconomic growth of the country.